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ABSTRACT

Increased global competition and rapidly changing labor markets are providing a new imperative for relevance and quality assurance in education. This imperative is driving a consensus around the need for standards that link the content of education and training to the demands of the workplace. The national framework for improving relevance and quality in education is established in part by two federal initiatives: the School-to-Work Opportunities Act and the National Skill Standards Act (NSSA). Two challenges facing the National Skill Standards Board established by the NSSA are to define occupational clusters and to ensure portability of credentials. Partnerships that develop standards must ensure that standards are broadly defined, specify the vocational and academic content of occupational skills, and reflect world class quality. Standards are used in a school-to-work system for curriculum development and assessment. Examples of effective practices are presented from the following schools: Brashear High School (Pittsburgh, Pennsylvania), Sacramento Regional School-to-Career Alliance (California), and Leander High School Lender, Texas). Contact and address information for the effective practices is provided. The bulletin lists seven organizations that can provide further information on the topic along with brief summaries describe the organization's focus and activities. Contact information is provided for Departments of Education and Labor Occupational Skill Standards projects and Building Linkages projects. Twelve resource publications are listed. (YLB)

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★RESOURCE★ BULLETIN

JANUARY 1997

Occupational Skill Standards and the School-to-Work Opportunities Act

Industry in the United States has no systematic means of communicating changing skill requirements to educators. As a result, school credentials often have little relevance to those requirements and little meaning to employers. Increased global competition and rapidly changing labor markets are providing a new imperative for relevance and quality assurance in education. This imperative is driving a consensus around the need for standards that link the content of education and training to the demands of the workplace.

Learners, educators, employers, and the public will benefit from the information and incentives that occupational skill standards provide. With standards, students can find out what is required of them in a chosen field and be motivated to achieve tangible results. Teachers can learn what employers and students need and can document the quality of educational services. Employers know what their new employees can do, can better target training investments, and can more fully use worker potential. In the long term, enabling learners and employers to make better labor market choices and adapt to a changing economy can lead to greater labor market efficiency, increased productivity, and a higher standard of living.

Federal Initiatives

The national framework for improving relevance and quality in education is established in part by two federal initiatives: the School-to-Work Opportunities Act (STWOA) and the National Skill Standards Act. The STWOA supports the development of systems that ensure that students have an opportunity to prepare for employment in broad occupational clusters or industries and to earn portable credentials that certify that they have mastered relevant skills. Under the STWOA, the standards for these skills are to be at least as challenging as those that will be created under the National Skill Standards Act.

The National Skill Standards Act established the National Skill Standards Board (NSSB) to serve as a catalyst to stimulate the development and adoption of a national system of voluntary skill standards and certification. The NSSB is composed of 27 members representing business, labor, education, government, and civil rights organizations. Their mission is to promote the creation of voluntary standards by industry in partnership with education, labor, and community stakeholders. Key tasks of the Board in carrying out this mission are: to identify broad clusters of major occupations that share characteristics appropriate for the development of skill standards, to promote the establishment of voluntary partnerships that will develop the standards, and to endorse the standards developed by these partnerships.

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The NSSB will draw upon the experiences of existing industry skill standards initiatives, including 22 skill standards pilot projects supported by the U.S. Departments of Education and Labor prior to the enactment of the National Skill Standards Act, and recently funded projects that will build upon the efforts of nine of those pilot projects. In addition, the NSSB, in partnership with the U.S. Department of Education's Office of Vocational and Adult Education and the School-to-Work Opportunities Office, recently initiated "Building Linkages." In this initiative, consortia that include school-to-work implementation states will explore ways to integrate academic and industry-recognized skill standards into multi-state career pathway systems leading to portable skill certificates.

In 1990, the Secretary of Labor appointed the Secretary's Commission on Achieving Necessary Skills (SCANS) to determine the general skills needed for success in all workplaces. Based on their research, SCANS identified generic workplace skills consisting of a three-part foundation (basic skills, thinking skills, and personal qualities) and five workplace competencies (the ability to use: resources, interpersonal skills, information, systems, and technology). A National Job Analysis Study is currently underway to validate the SCANS competencies through a survey of thousands of employees and an analysis of the use of such competencies in high-performance workplaces.

What Are Occupational Skill Standards?

Skill standards are statements of the knowledge and competence required to perform successfully in the workplace. **Content standards** define what a person should know and be able to do. **Performance standards** define how well a person knows or performs. Classifications of standards are usually framed as a continuum which includes 1) personal attributes and generic workplace readiness skills (such as the SCANS skills); 2) core knowledge and skills common to occupations within an industry or occupational cluster; and 3) knowledge and skills specific to an occupation or job. For each type of standard, levels of proficiency such as entry, journeyman, and master may be specified. The proficiency level of the standard would influence the mix of types of skills (i.e., generic, core, and specific) included in the standard.

Facilitating the Creation of Skill Standards: Challenges Facing the NSSB

Skill standards will help prepare students for high-skill careers and help workers adapt to changes in the economy only if they are framed in broad terms that are commonly recognized. Most observers agree that two of the challenges facing the NSSB are: 1) to define occupational clusters in a way that promotes the objectives of the National Skill Standards Act and is consistent with the needs of other users of occupational information, and 2) to coordinate the creation and use of standards so that credentials will be widely recognized.

Defining Occupational Clusters. The NSSB is holding public hearings and engaging in a dialogue with users of occupational information about how best to aggregate and organize occupational clusters. While several approaches have been proposed, including that occupations be clustered by industry, many experts maintain that the creation of occupational clusters should be based on the knowledge or work content that is common to occupations--on what people do, rather than on the industry in which they do it. Guided by standards that reflect broad knowledge-based clusters, students would learn skills consistent with

the way workers function in high-performance work systems where knowledge enables workers to cross traditional, narrow job classifications.

Ensuring Portability of Credentials. Standards will improve labor market efficiency and worker mobility only if the credentials based on them are widely recognized. Credentials based on knowledge and ability common to occupations that cut across industries will enable workers to move into new industries where their skills are in demand. The Board's role in establishing effective partnerships for the development of standards and in endorsing standards will be key to the acceptance of standards by educational institutions, industry associations, employers, and labor unions nationwide.

The Creation of Skill Standards: Challenges Facing Partnerships That Develop Standards

The process most often used to develop standards is known as occupational or job analysis. Expert workers and supervisors identify the functional areas of responsibility in an occupation and the tasks performed in carrying out each function. Focus group members may use existing descriptions of job duties as a starting point, or they may start from scratch and construct their own concept of the occupation. The process may also involve job site observation and interviews. The results of the process are validated through surveys of large numbers of experts.

Broadly Defined Standards. Standards that will be useful in preparing learners for high-skill occupations must capture how workers combine skills and apply them in context. A traditional job analysis process may result in narrowly defined standards which do not reflect the use of both academic and vocational skills. Job function analysis that asks broad questions about the role of a worker in relation to co-workers and the goals of the organization is more likely to produce broadly defined standards that can be applied over time and in different settings. In school-to-work systems, broadly defined standards are consistent with the broad range of occupations encompassed in career paths and are suggestive of the varied post-secondary school options open to graduates.

Standards That Specify the Vocational and the Academic Content of Occupational Skills. Workers in high-performance workplaces and students in career-oriented classes must combine academic and vocational skills to achieve work-related goals. In order to fully reflect the nature of work and learning in these environments, standards should specify both the academic and the vocational content of occupational skills. Some occupational skill standards specify vocational skills and related academic knowledge separately. Others include both academic and vocational skills in describing the performance of a single occupational function. Skill standards that specify academic and vocational content and indicate how they are combined in the performance of work provide teachers with more of the information they need to develop integrated curricula and assessment tools.

World Class Standards. Standards must reflect the best competitive practice. It is important not only that standards reflect the best current technology, but also that they anticipate technological developments. Creating standards with the input of leading edge firms, industry associations, and expert practitioners will help ensure that they are world class quality.

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How Standards are Used in a School-to-Work System

The incorporation of skill standards into school-to-work systems is still in the early stages. As a result of widespread support for the SCANS initiative, many schools have introduced generic workplace skills in the context of academic and career awareness courses beginning in middle school or earlier. As students embark on career paths in their sophomore or junior years, standards common to an occupational cluster are being used to design curricula and assessments. Occupation-specific standards are employed in some youth apprenticeship programs to equip students with the technical skills needed for postsecondary employment or training.

Curriculum Development. Skill standards do not tell teachers how to teach. They are used by schools as a framework to design curricula that integrate academic and vocational learning in occupational contexts, and to provide benchmarks for student achievement. Teachers and schools have the flexibility to create materials and use teaching methodologies that draw upon their strengths and best suit their needs.

Assessment. Assessment based on occupationally relevant standards can result in more equitable and efficient judgments about student performance. Standards allow for the measurement of performance in relation to established criteria rather than in comparison to other learners. With the aid of standards, assessments can measure much more than course completion--they can measure the students' ability to actually perform functions they will be expected to perform in the working world. Students are able to create a record of achievement and receive a credential that employers will recognize and value.

Effective Practices

Brashear High School is one of four schools in the Pittsburgh Health Careers Initiative serving as an implementation site for the health services skill standards developed by the National Health Care Skill Standards Pilot Project. Five sets of standards were developed by the project: core standards that apply to all health care workers and standards specific to each of four clusters. The clusters are: therapeutic, diagnostic, informational, and environmental. For each set, the project developed only content standards. High school implementation sites use the content standards to develop curricula and assessment tools. Some are planning to develop related performance standards.

The **Sacramento Regional School-to-Career Alliance** has incorporated the California banking skill standards into the region's school-to-work system. The banking standards are a joint project of the California Business Roundtable and the California Department of Education. The standards identify the core skills necessary for all employees in the banking industry. Building upon the foundation, educators and representatives from the banking industry have created standards specific to three clusters: data and item processing, loan processing, and sales and service.

Teachers and their business partners worked together to establish skill standards for students in six career clusters at **Leander High School** in Leander, Texas. The standards are broad statements of what the student must be able to do upon completing a sequence of courses in each career area. They have been used to revise curricula and issue certificates known as Career Passports.

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FOR MORE INFORMATION ABOUT THIS TOPIC,
PLEASE CONSULT THE FOLLOWING RESOURCES:

Effective Practices

Brashear High School: Deborah L. Ference, Project Director for the Pittsburgh Health Careers Initiative, The Hospital Council of Western Pennsylvania, 500 Commonwealth Drive, Warrendale, PA 15086 ★ (412) 772-7236 or Joyce Clark, Restructuring Facilitator, Brashear High School, 590 Crane Avenue, Pittsburgh, PA 15216 ★ (412) 571-7478.

Sacramento Regional School-to-Career Alliance: Brenda Gray, Executive Director of LEED Sacramento, 2700 Gateway Oaks Drive, Building C, Suite 100, Sacramento, CA 95833 ★ (916) 641-4180.

Leander High School: Mark Kincaid, Leander High School, 3301 South Bagdad, Leander, TX 78641 ★ (512) 435-8000.

Organizations

Institute For Educational Leadership's (IEL) Center for Workforce Development has focused considerable attention on the issue of developing skill standards. IEL recently investigated a variety of skill standards initiatives, including state initiatives, the 22 pilot projects, and international analyses of skill standards. 1001 Connecticut Avenue, NW, Suite 310, Washington, DC 20005 ★ (202) 822-8405.

The Johns Hopkins University Institute for Policy Studies, SCANS 2000 Program is an interdisciplinary research group run by Dr. Arnold Packer, former executive director of SCANS. The staff of SCANS/2000 is working on projects related to school-to-work and education reform. SCANS/2000 Program, Johns Hopkins University, Institute for Policy Studies, Wymand Park Building, 3400 N. Charles Street, Baltimore, MD 21218 ★ Fax: (410) 516-4775 ★ Interne!: http://www.jhu.edu:80/~ips/scans/

National Alliance of Business (NAB) is a business-led nonprofit organization dedicated to building a quality workforce that meets the needs of employers. NAB has published titles on occupational skill standards that include *Standards Mean Business* and *The Challenge of Change: Standards to Make Education Work for All Our Children.* 1201 New York Avenue, NW, Suite 700, Washington, DC 20005 ★ (800) 787-2848.

National Center for Research in Vocational Education is the nation's largest center for research and development in work-related education. Headquartered at the University of California at Berkeley since 1988, it is a consortium of universities and research organizations funded by the U.S. Department of Education. University of California at Berkeley, 2150 Shattuck Avenue, Suite 1250, Berkeley, CA 94720-1674 ★ (800) 762-4093 ★ AskNCRVE@vocserve.berkeley.edu ★ Internet: http://vocserve.berkeley.edu/

National Center on Education and the Economy's (NCEE) Workforce Skills Program is working to build human resources investment systems in the United States by helping to implement the recommendations in *America's Choice: High Skills or Low Wages!* at the national, state, and local levels. A key piece of NCEE's agenda is the development of skill standards and certificates through the Certificate of Initial Mastery and other approaches. 39 State Street, Suite 500, Rochester, NY 14614. ★ (716) 546-7620.

National Occupational Information Coordinating Committee is a federal interagency committee whose primary mission is to improve communication and coordination among developers and users of occupational

labor-market information. It functions as a coordinating committee with members representing nine agencies within the U.S. Departments of Labor, Education, Commerce, Defense, and Agriculture. 2100 M Street, NW, Suite 156, Washington, DC 20037 ★ (202) 653-7680.

National Skill Standards Board (NSSB), created by Title V of the Goals 2000: Educate America Act (Title V is also known as the National Skill Standards Act), has been charged with promoting a "national strategy to enhance workforce skills, including school-to-work transition." The mission of the NSSB is to encourage the creation and adoption of a national system of skill standards which will enhance the ability of the United States to compete effectively in the global economy. The Board first met on April 7, 1995, and public hearings on the role of the NSSB began in March of 1996. 1441 L Street, NW, Suite 9000, Washington, DC 20005-3521. ★ (202) 254-8628 ★ Internet: http://www.nssb.org/

U.S. Departments of Education and Labor Occupational Skill Standards Projects:

- *Advanced High Performance Manufacturing.* Contact: C.J. Shroll, National Coalition for Advanced Manufacturing ★ 1331 Pennsylvania Avenue, NW, Suite 1410 North, Washington, DC 20004-1703 ★ (202) 662-8968 ★ Internet: http://www.bmpcoe.org/nacfam/skilstd2.html
- *Agricultural Biotechnology.* Contact: Bernard Staller, National FFA Foundation, P.O. Box 15160, Alexandria, VA 22309-0160 ★ (703) 360-3600.
- *Air Conditioning, Heating and Refrigeration.* Contact: Victor L. Harville, V-TECS, Southern Association of Colleges and Schools, 1866 Southern Lane, Decatur, GA, 30033-4097 ★ 1-800-248-7701.
- *Automobile, Autobody, Medium/Heavy Truck Technician.* Contact: Patricia A. Lundquist, Ph.D, NATEF, 13505 Dulles Technology Drive, Herndon, VA 22701-3415 ★ (703) 713-0100.
- *Bioscience.* Contact: Judith Leff, Project Director and Monika Aring, Principal Investigator, Education Development Center, 55 Chapel Street, Newton, MA 02160 ★ (617) 969-7100 ext. 2373.
- *Chemical Process Industries (Chemical, Petroleum, Environmental, Pharmaceutical, etc.).* Contact: Kenneth Chapman, American Chemical Society, 1155 Sixteenth Street, NW, Washington, DC 20036 ★ (202) 872-8734.
- *Computer Aided Drafting and Design.* Contact: John Morrison, Jane Beardsworth, and Teresa Newton-Terres, Foundation for Industrial Modernization, 1331 Pennsylvania Avenue, NW, Suite 1410, North Tower, Washington, DC 20004-1703 ★ (202) 637-3436.
- *Electrical Construction.* Contact: Charles Kelly, Director of Labor-Management Services, National Electrical Contractors Association, 3 Bethesda Metro Center, Suite 1100, Bethesda, MD 20814-5372 ★ (301) 657-3110.
- *Electronics* (Department of Education). Contact: Irwin Kaplan, Tim Farr, and Molly Mannon, Electronics Industries Foundation, 919 18th Street, NW, Washington, DC 20006 ★ (202) 955-5817.
- *Electronics* (Department of Labor). Contact: Cheryl Fields Tyler, Director of Workforce Excellence, American Electronics Association, 5201 Great American Parkway, Box 54990, Santa Clara, CA 95054 ★ (408) 987-4267.
- *Grocery.* Gail Hanger and Thomas Zaucha, Grocers Research and Education Foundation, 1825 Samuel Morse Drive, Reston, VA 22090 ★ (703) 437-5300.
- *Hazardous Materials Management Technology.* Contact: Jim Johnson, Project Director, CORD, 601 Lake Air Drive, Waco, TX 76710 ★ (817) 772-8756.
- *Health Services.* Contact: Dr. Sri Ananda, Director-Assessment Services Program, Far West Laboratory for Educational Research and Development, 730 Harrison Street, San Francisco, CA 94107-1242 ★ (415) 241-2725.★ Internet: http://www.fwl.org/nhcssp/welcome.html
- *General Construction-Heavy Highway/Construction and Environmental Remediation.* Contact: James M. Warren and John L. Tippie, Laborers-AGC Education and Training Fund, P.O. Box 37, 37 Deerfield Road, Pomfret Center, CT 06259 ★ (203) 974-0800.
- *Hospitality and Tourism.* Contact: Doug Adair, Laura Pfalzer, and Joe Ryan, CHRIE, 1200 17th Street, NW, Washington, DC 20036-3097 ★ (202) 331-5990.★ Internet: http://access.digex.net/~alliance/skills.html

- *Human Services.* Contact: Marianne Taylor or Ralph Warren, Human Services Research Institute, 2336 Massachusetts Avenue, Cambridge, MA 02140 ★ (617) 876-0426.
- *Industrial Laundry.* Contact: David Dunlap, Uniform and Textile Service Association, 1300 N. 17th Street, Suite 750, Arlington, VA 22209 ★ (202) 296-6744.
- *Metalworking.* Contact: Robert Sherman, National Institute for Metalworking Skills, 2209 Hunter Mill Road, Vienna, VA 22181 ★ (703) 255-5886.
- *Photonics.* Contact: Darrell Hull, Photonics Project Director, Center for Occupational Research and Development, 601 Lake Air Drive, Waco, TX 76710 ★ (817) 772-8756.
- *Printing.* Contact: Jack Simich, Graphic Arts Technical Foundation, 4615 Forbes Avenue, Pittsburgh, PA 15213-3796 ★ (412) 621-6941.
- *Retail Trade.* Contact: Robert Hall, Vice President Government Affairs Counsel, and Kathy Mannes, Project Coordinator, National Retail Federation, 325 7th Street, NW, Suite 1000, Washington, DC 20000 ★ (202) 783-7971.
- *Welding.* Contact: Nelson Wall and Robert Reeve, American Welding Society, 550 NW LeJuene Road, Miami, FL 33126 ★ (305) 443-9353.

National Skill Standards Board, U.S. Department of Education, and National School-to-Work Office - Building Linkages Projects:

- *Consortium I: Health Care.* State Lead: Utah, State Office of Education (in conjunction with New Jersey). Contact: Scott Hess, School-to-Work Coordinator, State Office of Education, 250 East 500 South, Salt Lake City, UT 84111 ★ (801) 538-7850.
- *Consortium II: Manufacturing.* State Lead: Indiana, Department of Workforce Development. Contact: Peggy O'Malley, Director of School-to-Work, Department of Workforce Development, 10 N. Senate Avenue, S.E., Room 302, Indianapolis, IN 46204-2277 ★ (317) 232-7670.
- *Consortium III: Business/Management.* State Lead: Oregon Department of Education. Contact: Nancy Hargis, Acting Coordinator of School-to-Work, Oregon Department of Education, 255 Capitol Street, N.E., Salem, OR 97310 ★ (503) 378-3921.

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